

1. A mechanical key device formed as a solid unit and fitted for insertion into a lock, comprising:

a metal key blade with mechanical bitting to fit a pattern  
5 of a lock,

*Sub 03*  
a key head solidly fixed to the key blade and having a front end from which the key blade extends,

an electronic identification device or memory cell in the key head, grounded on one side to the metal key device and having 10 a data side isolated from the metal key head, the ID device comprising a self-contained device with serial number ID data in a one-wire bus protocol with an external casing of the ID device comprising only two terminals on two opposed sides, one of which comprises said one side grounded to metal of the key device and the other being said data side, the key device having a data contact isolated from metal of the key device and positioned to engage with a key reading contact associated with a key slot, the data contact being connected to said data terminal side of the self-contained electronic ID device,

20 whereby data stored by the electronic ID device may be read by reading apparatus when the key device is inserted making said one-wire bus connection.

2. The key device of claim 1, wherein the key blade is

integral with the key head.

3. The key device of claim 1, wherein the key head has a hole sized to closely receive the electronic ID device, making  
5 ground contact.

4. The key device of claim 3, wherein the hole has a diameter of about 16mm.

10 5. The key device of claim 4, wherein the electronic ID device has a thickness no more than about 3mm.

6. The key device of claim 1, wherein the electronic ID device has an internal battery.

7. The key device of claim 1, wherein the electronic ID device has a thickness no more than about 3mm.

20 8. The key device of claim 1, wherein the electronic ID device has a thickness of about 5.9mm.

9. The key device of claim 1, including an outer plastic cover over the key head.

10. The key device of claim 9, wherein the plastic cover comprises two half-shells secured together, with one of the two half shells carrying a conductor which engages and makes contact with the data side of the electronic ID device upon securing of  
5 the two half shells over the key head.

11. The key device of claim 1, wherein the data contact of the key extends from the front end of the key head adjacent to the key shoulder, in position to engage with a key reading contact of a lock.  
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12. The key device of claim 1, wherein the data contact is located on a side of the key blade, and including an isolated conductor connecting the data contact with said data side terminal of the ID device.

13. The key device of claim 12, wherein the key blade is symmetrically reversible in orientation, and wherein said data contact comprises two similar data contacts, one on each side of  
20 the reversible key blade.

14. The key device of claim 1, wherein the electronic ID device comprises a sealed can unit with microcontroller, battery and read/write memory.

15 A mechanical key device formed as a solid unit and fitted for insertion into a lock, comprising:

a metal key blade with mechanical bitting to fit a pattern of a lock,

5 a key head integral with the key blade and having a front end from which the key blade extends,

the key head including an electronic identification device or memory cell secured to the key head, the ID device comprising a self-contained device with serial number ID data in a one-wire bus protocol, with an external casing of the ID device comprising two terminals on two opposed sides, one being a ground side and the other being a data side,

10 the key device having a data contact isolated from metal of the key device and positioned to engage with a key reading contact associated with a key slot, the data contact being connected to said data side terminal of the self-contained electronic ID device, and the key device further having a ground contact connected to said ground side terminal of the memory cell, positioned to engage with a ground contact associated with 20 a key slot,

whereby data stored by the electronic ID device may be read by reading apparatus when the key device is inserted making said one-wire bus connection.

16. The key device of claim 15, wherein the key head has a substantially circular recess within which ~~the~~ memory cell is positioned.

5 17. The key device of claim 15, wherein the key device has a ground contact connected to the ground side of ~~the~~ memory cell and positioned to engage with a ground contact of said reading apparatus at the key slot.

10 18. A mechanical key device formed as a solid unit and fitted for insertion into a lock, comprising:

a key blade with mechanical bitting to fit a pattern of a lock,

a key head integral with the key blade and having a front end from which the key blade extends,

the key head including an electronic identification device or memory cell secured to the key head, ~~the~~ memory cell comprising a self-contained unit with unique serial number ID data in a one-wire bus protocol with an external casing of the memory cell comprising two terminals on two opposed sides, one being a ground side and the other being a data side,

20 the key device having an isolated data contact and positioned to engage with a key reading contact associated with a key slot, the data contact being connected to said data side

terminal of the self-contained memory cell device,

whereby data stored by the electronic ID device may be read by reading apparatus when the key device is inserted making said one-wire bus connection.

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19. The key device of claim 18, wherein the key head has a substantially circular recess within which the memory cell is positioned.

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The key device of claim 18, wherein the key device has a ground contact connected to the ground side of the memory cell and positioned to engage with a ground contact of said reading apparatus at the key slot.

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21. The key device of claim 18, wherein the electronic identification device or memory cell comprises a sealed can unit with non-volatile memory, battery and microcontroller.

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22. The key device of claim 18, wherein the key head includes two <sup>(1A)</sup> said memory cells, the key device having two said data contacts positioned to engage with two separate key reading contacts associated with a key slot.

23. The key device of claim 18, wherein the key head

further includes a can-type battery in a second self-contained unit, adjacent to the memory cell, and the key device having a second isolated contact connected to the can-type battery.

5        24. The key device of claim 23, wherein the battery unit and the memory cell are positioned back to back and in electrical contact.

10      25. A key device formed as a solid unit and adapted to be received in a key slot with a reader, comprising:

a key blade adapted to be received in said key slot,

a key head secured to the key blade and having a front end from which the key blade extends,

the key head including an electronic identification device or memory cell secured to the key head, the memory cell comprising a self-contained unit with unique serial number ID data in a one-wire bus protocol with an external casing of the memory cell comprising two terminals on two opposed sides, one being a ground side and the other being a data side,

20      the key device having an isolated data contact and positioned to engage with a key reading contact associated with the key slot, the data contact being connected to said data side terminal of the self-contained memory cell device,

whereby data stored by the electronic ID device may be read

by reading apparatus when the key device is inserted making said one-wire bus connection.

26. The device of claim 25, wherein the key blade includes  
5 a retention means for engaging in a lock connected to said key slot, to retain the key in the slot as the key is turned in the lock.

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